551.575 (047)

FOG AS A SOURCE OF WATER SUPPLY.

[Dated: Washington, D. C., Mar. 20, 1916.]

The following communication has been received by the editor from Mr. William Gardner Reed:

Referring to the article by Paul Descombes entitled "Reforestation and occult condensation" in the December, 1915, number of the REVIEW (43:617–618) it may be of interest to note the effect of the summer fogs of the California coast region. As is well known the region is one in which measurable precipitation does not commonly occur between early June and late September. The result is that herbaceous vegetation dries in the summer and the brown of the dry grass (practically standing hay) is characteristic of the region, except where the surface cover is forest or chaparral (brush). There is apparently a close relation between the occurence of summer fog and the distribution of the redwood (*Sequoia sempervirens*) in California. In addition, a result of the fog is easily seen wherever there are single trees, such as is the case on the Berkeley Hills of the Coast Ranges which are in process of reforestation. During the summer fogs the small trees are dripping with moisture, although the ground away from the trees is perfectly dry. As a result the grass beneath each tree remains green throughout the year. Away from the immediate vicinity of the tree the grass is brown and the earth dry and powdery, while beneath the tree the ground is kept moist to a considerable depth. * * * Whether this moisture has any important effect on the growth of the tree may well be questioned, but it is certainly sufficient to make an important difference in the growth of the grass.

A SIMPLE WIND VELOCITY INDICATOR FOR USE WITH THE ROBINSON ANEMOMETER.

By BENJAMIN C. KADEL, in charge of Instrument Division.

[Dated: Weather Bureau, Washington, D. C., May 27, 1916.]

An attachment for the Robinson anemometer that will indicate in a convenient manner the velocity of the wind when desired, without the expense of installing and maintaining a continuously operating register, has recently been devised by Benjamin C. Kadel and described in an appendix to Circular D, of the Instrument Division, Weather Bureau.

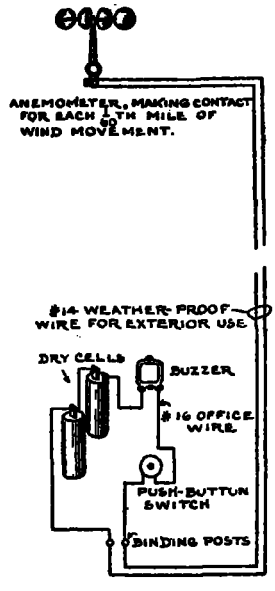

FIG. 1.—Plan of circuits for the Kadel indicating anemometer.

Six pins on the first or worm wheel in the train of gearing have been so arranged that an electrical contact is made and a circuit closed during a brief interval for each one-sixtieth mile of travel of the wind, thus sounding an electric buzzer or door bell at the location desired. The fraction of a mile selected is such that the number of times the buzzer sounds in one minute is equal to the wind velocity in miles per hour, thus obviating the use of explanatory tables. A switch placed in the circuit saves battery and sparking of the contact when the buzzer is not in use.

When the velocity of the wind is desired, it is required merely to close the switch and to count the impulses for one minute.

In actual practice it is found that the variation in the time between impulses is a pretty good guide to the gustiness of the wind as well, a fact of some interest to aviators.

The device will probably be of use to aviators, rifle-range officers, fire wardens, and others who wish to know the wind velocity only at a particular time, and who do not care to go to the expense and trouble of providing and maintaining an automatic register.

THE DIURNAL VARIATION OF UNDERGROUND TEMPERATURE.[1]

By S. SATO.

[*Reprinted from* Science Abstracts, Sect. A, Mar. 25, 1916, § 287.]

The usual method of measuring earth temperatures is by hanging a mercury thermometer at the required depth in a metal tube sunk in the ground. In the present paper the temperatures recorded in a tube of this type are compared with those obtained by means of an electrical resistance thermometer buried in the soil. As the mercury thermometers ordinarily used were not of sufficient sensitiveness for a satisfactory comparison, an electrical resistance thermometer was used in the earth tubes in place of the mercury ones. It was found that conduction of heat along the walls of the tube, and conduction and convection of the air column in the tube, caused the diurnal variation of the temperature in the metal pipe system, to differ considerably in phase and amplitude from the curve of actual temperature changes in the soil at the same depth. Further, the error does not tend to vanish with increase of depth, but rather to increase. The ratio of the diurnal amplitude in the metal pipe system to the true amplitude at the same depth is given in the following table, together with the error in the phase angle:

Depth.	30 cm.	40 cm.	50 cm.
Ratio of amplitudes	1.88	2.18	2.62
Phase difference, in hours	7.5	10.25	13.5

Thus at 50 cm. depth the amplitude given by the metal pipe system is more than 2½ times the true value, and the maximum and minimum temperatures occur 13½ hours before the times of the corresponding extremes in the soil at the same depth. The absolute error in temperature commonly ranges up to between 0.5 and 1.0° C.—*J. S. Di*[*nes*].

ALEKSANDR IVANOVICH VOEÏKOV, 1842-1916.

The Novoe Vremîa (Petrograd) of January 30/February 12, 1916, announces the death of the eminent Russian meteorologist and geographer, Aleksandr Ivanovich Voeïkov (Woeikof), at Petrograd on January 28/February 10, 1916, from inflammation of the lungs.[2]

Voeïkov, or, as he was accustomed to transliterate his name, Woeikow, was born in Moscow in 1842 of a family that had already given Russia a number of writers. While still young he traveled not only in western Europe, but also in Syria and Palestine, and no doubt thereby developed his love for geographical studies. After passing his student years at German universities, particularly at Göttingen, he returned to Russia, became, in 1866, a member of the Imperial Russian Geographical Society, and from that time on devoted himself to meteorological studies. In 1873 and 1875 these researches led him to travel,

[1] Proc., Math. phys. soc., Tokyo, Dec., 1915, 8:328–336.
Tohoku Univ. Sci. Rep. 4, No. 5, 1916, pp. 393–405.
[2] Note by Semenov Tian-Chanskiĭ, abstracted by Émile Haumont, *in* Annales de Géographie, No. 134, 15 mars, 1916, 25:150–151.